

Claim Listing:

1-33. (Cancelled).

34. (Previously Presented) A multi-tier system for digital radio communication, comprising:

a processor-based host adapted to control a plurality of remote units, wherein the host is connected to a wired local area network;

a first-tier base station communicatively coupled to the host through the wired local area network, wherein the first-tier base station is adapted to communicate with the host using a local area network communication protocol and to communicate with a second-tier base station using a first communication protocol;

a first second-tier base station communicatively coupled to the first-tier base station through a wired link that is distinct from the local area network, wherein the first second-tier base station and the first-tier base station communicate using the first communications protocol; and

a plurality of additional second-tier base stations wirelessly coupled in series to the first second-tier base station, wherein the plurality of additional second-tier base stations are intermediate the first second-tier base station and the plurality of remote units, and wherein the first second-tier base station is capable of communicating with a second-tier base station of the plurality of second-tier base stations without an intervening first-tier base station using a different communications protocol from the first communications protocol,

wherein the host is adapted to control the plurality of remote units through the first-tier base station, the first second-tier base station, and the plurality of additional second-tier base stations.

35. (Previously Presented) A multi-tier system for digital radio communication, comprising:

a processor-based host adapted to control a remote unit;

a first-tier base station communicatively coupled to the host;

a first second-tier base station communicatively coupled to the first-tier base station;

and

a second second-tier base station wirelessly coupled to the first second-tier base station, wherein the second second-tier base station is intermediate the first second-tier base station and the remote unit, and wherein the first second-tier base station is capable of communicating with the second second-tier base station without an intervening first-tier base station,

wherein the host is adapted to control the remote unit through the first-tier base station,

the first second-tier base station, and the second second-tier base station, and

wherein the second second-tier base station is adapted to go into a sleep mode for a

preselected interval, wherein before entering the sleep mode, the second second-tier base station transmits an indication representative of the duration of the preselected interval to the remote unit.

36. (Previously presented) The system of claim 35, wherein the duration of the preselected interval is defined by a start and end time of the preselected interval.

37. (Previously Presented) The system of claim 34, wherein each of the plurality of additional second-tier base stations is adapted to:

buffer data intended for the remote unit;
transmit an indication at predetermined intervals to inform the remote unit of the presence of buffered data;
receive a request from the remote unit; and
provide the buffered data to the remote unit in response to receiving the request from the remote unit.

38. (Previously Presented) The system of claim 34, wherein at least one remote unit comprises a data collection device.

39. (Previously Presented) The system of claim 34, wherein at least one remote unit comprises a bar code reader or an RFID reader.

40. (Previously Presented) The system of claim 34, wherein at least one remote unit comprises at least one of a vending machine, door locking mechanism, computer peripheral, thermostat, and pager.

41. (Previously Presented) The system of claim 40, wherein at least one remote unit comprises a computer peripheral selected from the group comprising a printer, modem, handheld terminal, point of sale station, and other serial or parallel devices.

42. (Cancelled).

43. (Previously presented) The system of claim 34, wherein the first-tier base station is wirelessly connected to the local area network.

44. (Previously presented) The system of claim 34, wherein the first second-tier base station is connected to the first-tier base station through a serial port.

45. (Cancelled).

46. (Previously Presented) The system of claim 34, wherein the plurality of additional second-tier base stations communicate with the first-tier base station through the first second-tier base station.

47. (Previously Presented) A multi-tier system for digital radio communication, comprising:

a processor-based host adapted to control a plurality of remote units through a control signal, wherein the host is connected to a wired local area network; a first-tier base station adapted to receive the control signal from the host through the wired local area network, wherein the first-tier base station is adapted to communicate with the host using a local area network communication protocol and to communicate with a second-tier base station using a first communication protocol;

a first second-tier base adapted to receive the control signal from the first-tier base station over a wired link that is distinct from the local area network, wherein the first second-tier base station and the first-tier base station communicate using the first communications protocol; and

a plurality of second-tier base stations wirelessly coupled in series to the first second-tier base station, wherein the plurality of second-tier base stations are intermediate the first second-tier base station and the plurality of remote units, and wherein the plurality of second-tier base stations are adapted to receive the control signal from the first second-tier base station using a different communications protocol from the first communications protocol and to provide the control signal to at least one remote unit of the plurality of remote units.

48. (Cancelled).

49. (Previously Presented) A multi-tier system for digital radio communication, comprising:
- a processor-based host adapted to control a remote unit through a control signal;
- a first-tier base station adapted to receive the control signal from the host, wherein the first-tier base station operates in accordance with a first communication protocol;
- a first second-tier base adapted to receive the control signal from the first-tier base station, wherein the first second-tier base station and the first-tier base station communicate using the first communications protocol; and
- a second second-tier base station wirelessly coupled to the first second-tier base station, wherein the second second-tier base station is intermediate the first second-tier base station and the remote unit, and wherein the second second-tier base station is adapted to receive the control signal from the first second-tier base station using a different communications protocol from the first communications protocol and to provide the control signal to the remote unit, and
- wherein the second second-tier base station is adapted to go into a sleep mode for a preselected interval, wherein before entering the sleep mode, the second second-tier base station transmits an indication representative of the duration of the preselected interval to the remote unit.

50. (Previously presented) The system of claim 49, wherein the duration of the preselected interval is defined by a start and end time of the preselected interval.

51. (Cancelled).

52. (Cancelled).

53. (Previously Presented) The system of claim 34, wherein each of the plurality of additional second-tier base stations is adapted to:

transmit an associate command to the remote unit;

receive a message from the remote unit in response to the associate command, wherein

the message comprises an identifier associated with the remote unit; and

transmit a synchronization interval to the remote unit in response to receiving the message.

54. (Previously Presented) The system of claim 48, wherein each of the plurality of additional second-tier base stations is adapted to:

transmit an associate command to the remote unit;

receive a message from the remote unit in response to the associate command, wherein

the message comprises an identifier associated with the remote unit; and

transmit a synchronization interval to the remote unit in response to receiving the message.

55. (Previously Presented) A multi-tier system for digital radio communication, comprising:

a processor-based host adapted to control a plurality of remote units, wherein the host is connected to a wired local area network;

a first-tier base station communicatively coupled to the host through the wired local area network, wherein the first-tier base station is adapted to communicate with the host using a local area network communication protocol and to communicate with a second-tier base station using a first communication protocol;

a first second-tier base station communicatively coupled to the first-tier base station through a wired link that is distinct from the local area network, wherein the first second-tier base station and the first-tier base station communicate using the first communications protocol; and

a plurality of second-tier base stations wirelessly coupled in series to the first second-tier base station, wherein the plurality of second-tier base stations are intermediate the first second-tier base station and the plurality of remote units, and wherein the plurality of second-tier base stations have a short transmission range,

wherein the host is adapted to control the remote unit through the first-tier base station, the first second-tier base station, and the plurality of second-tier base stations.

56. (Previously Presented) A multi-tier system for digital radio communication, comprising:
- a processor-based host adapted to control a remote unit;
- a first-tier base station communicatively coupled to the host, wherein the first-tier base station operates in accordance with a first communication protocol;
- a first second-tier base station communicatively coupled to the first-tier base station, wherein the first second-tier base station and the first-tier base station communicate using the first communications protocol; and
- a second second-tier base station wirelessly coupled to the first second-tier base station, wherein the second second-tier base station is intermediate the first second-tier base station and the remote unit, and wherein the second-tier base stations have a shorter transmission range relative to that of the first-tier base station,
- wherein the host is adapted to control the remote unit through the first-tier base station, the first second-tier base station, and the second second-tier base station, and wherein the second second-tier base station is adapted to go into a sleep mode for a preselected interval, wherein before entering the sleep mode, the second second-tier base station transmits an indication representative of the duration of the preselected interval to the remote unit.

57. (Previously presented) The system of claim 56, wherein the duration of the preselected interval is defined by a start and end time of the preselected interval.

58. (Previously Presented) The system of claim 55, wherein each of the plurality of additional second-tier base stations is adapted to:

transmit an associate command to the remote unit;
receive a message from the remote unit in response to the associate command, wherein the message comprises an identifier associated with the remote unit; and
transmit a synchronization interval to the remote unit in response to receiving the message.